Chapter 7: Quadratics

Name: ________________________

Notes 7.7 Quadratic Formula

Another method to solve quadratics for questions that don’t ____________

Quadratic Formula: \[ x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \]

For a quadratic in the form \( ax^2 + bx + c = 0 \)

Example #1: Solve \( x^2 + 3x - 5 = 0 \)

Find two numbers that multiply to -5 and add to 3? ____________

Does it even have solutions? Graph:

Use the formula…
Example #2: Solve $2x^2 - 5x - 3 = 0$

Example #3: Solve $2x^2 - 5 = -8x$
### Assignment

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<tr>
<td>1a) $x^2 + 7x - 5 = 0$</td>
<td>1c) $2a^2 - 5a + 1 = 0$</td>
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<tr>
<td>1b) $8x^2 + 35x + 12 = 0$</td>
<td>1d) $-20p^2 + 7p + 3 = 0$</td>
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<td>2a) $x^2 + 5x - 6 = 0$</td>
<td>2c) $25x^2 - 121 = 0$</td>
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<td>2b) $4x + 9x^2 = 0$</td>
<td>2d) $12x^2 - 17x - 40 = 0$</td>
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<td>Equation 1</td>
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<tr>
<td>3a</td>
<td>$3x^2 + 5x = 9$</td>
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<tr>
<td>3b</td>
<td>$1.4x - 3.9x^2 = -2.7$</td>
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<td>4a</td>
<td>$3x^2 - 6x - 1 = 0$</td>
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<tr>
<td>4b</td>
<td>$x^2 + 8x + 3 = 0$</td>
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Answer Key

1. a) \( x = \frac{-7-\sqrt{69}}{2}, \frac{-7+\sqrt{69}}{2} \)  
   b) \( x = -4, -0.375 \)  
   c) \( x = \frac{5-\sqrt{17}}{4}, \frac{5+\sqrt{17}}{4} \)  
   d) \( p = -0.25, 0.6 \)

2. a) \( x = -6, 1 \)  
   b) \( x = -\frac{4}{9}, 0 \)  
   c) \( x = 2.2, -2.2 \)  
   d) \( x = -\frac{5}{4}, \frac{8}{3} \)

3. a) \( x = \frac{-5-\sqrt{133}}{6}, \frac{-5+\sqrt{133}}{6} \)  
   b) \( x = \frac{7-\sqrt{1102}}{39}, \frac{7+\sqrt{1102}}{39} \)  
   c) \( x = \frac{3-\sqrt{3}}{2}, \frac{3+\sqrt{3}}{2} \)  
   d) no solution

4. a) \( x = \frac{3-2\sqrt{3}}{3}, \frac{3+2\sqrt{3}}{3} \)  
   b) \( x = -4 - \sqrt{13}, -4 + \sqrt{13} \)  
   c) \( x = \frac{-2-\sqrt{6}}{4}, \frac{-2+\sqrt{6}}{4} \)  
   d) \( x = \frac{2-\sqrt{5}}{3}, \frac{2+\sqrt{5}}{3} \)